

### Abstract

An apparatus for separating a first gas from a mixture of the first gas and at least one second gas comprises a housing having an inlet port and an outlet port and an adsorbent which is positioned in the housing. The adsorbent  
5 comprising a carbon based foam monolith that has an affinity for the first gas. Thus, as the gas mixture flows through the housing, the first gas will be adsorbed onto the adsorbent and the second gas will exit the housing through the outlet port. In this manner, the first gas is separated from the second gas.